Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Original): A production method of a DDR type zeolite membrane, characterized in that a DDR type zeolite membrane is formed by carrying out hydrothermal synthesis with using a raw material solution having a containing ratio of 1-adamantanamine to silica (1-adamantanamine/SiO_2) of a molar ratio of 0.03 to 0.4, a containing ratio of water to the silica (water/SiO_2) in a molar ratio of 20 to 500, and a containing ratio of ethylenediamine to the 1-adamantanamine (ethylenediamine/1-adamantanamine) in a molar ratio of 5 to 32; and a DDR type zeolite powder to be a seed crystal.

Claim 2 (Original): The production method of a DDR type zeolite membrane according to claim 1, wherein said raw material solution has a containing ratio of said 1-adamantanamine to said silica (1-adamantanamine/SiO_2) of 0.05 to 0.25 in a molar ratio, a containing ratio of said water to said silica (water/SiO_2) of 28 to 220 in a molar ratio, and a containing ratio of said ethylenediamine to said 1-adamantanamine (ethylenediamine/ 1-adamantanamine) of 8 to 24 in a molar ratio.

Claim 3 (Currently Amended): The production method of a DDR type zeolite membrane according to claim 1 ~~or 2~~, wherein said raw material solution is

prepared by dissolving said 1-adamantanamine in said ethylenediamine to prepare a 1-adamantanamine solution, and then mixing said 1-adamantanamine solution with said silica sol solution containing silica.

Claim 4 (Currently Amended): The production method of a DDR type zeolite membrane according to ~~any one of claims 1 to 3~~ claim 1, wherein hydrothermal synthesis is performed at 130°C to 200°C.

Claim 5 (Currently Amended): The production method of a DDR type zeolite membrane according to ~~any one of claims 1 to 4~~ claim 1, wherein said DDR type zeolite powder is dispersed in said raw material solution.

Claim 6 (Currently Amended): The production method of a DDR type zeolite membrane according to ~~any one of claims 1 to 5~~ claim 1, wherein said DDR type zeolite membrane is formed on a porous substrate.

Claim 7 (Currently Amended): The production method of a DDR type zeolite membrane according to ~~any one of claims 1 to 4~~ claim 1, wherein said DDR type zeolite powder is deposited on a porous substrate, and said raw material solution is brought into contact with said porous substrate to form said DDR type zeolite membrane on said porous substrate.

Claim 8 (Currently Amended): The production method of a DDR type zeolite membrane according to claim 6 ~~or 7~~, wherein a thickness of said DDR type zeolite membrane formed on said porous substrate is 0.1 to 50 μm.

Claim 9 (Currently Amended): The production method of a DDR type zeolite membrane according to ~~any one of claims 6 to 8~~ claim 6, wherein said porous substrate is in the form of a plate, a cylinder, a honeycomb, or a monolith having a plurality of cylindrical tubes integrated.

Claim 10 (Original): A DDR type zeolite membrane, characterized in that it is formed as a membrane on a substrate and its main component is silica, and that each single gas permeance at room temperature and 100°C are different, respectively among at least two types of gases selected from a group consisting of carbon dioxide (CO_2), hydrogen (H_2), oxygen (O_2), nitrogen (N_2), methane (CH_4), normal butane (n-C_4H_{10}), isobutane (i-C_4H_{10}), sulfur hexafluoride (SF_6), ethane (C_2H_6), ethylene (C_2H_4), propane (C_3H_8), propylene (C_3H_6), carbon monoxide (CO), and nitrogen monoxide (NO).

Claim 11 (Original): The DDR type zeolite membrane according to claim 10, wherein a gas permeance of carbon dioxide (CO_2) at room temperature is 1.0×10^{-9} ($mol \cdot m^{-2} \cdot s^{-1} \cdot Pa^{-1}$) or more.

Claim 12 (Original): The DDR type zeolite membrane according to claim 10, wherein a gas permeance of carbon dioxide (CO_2) at 100°C is 5.0×10^{-10} ($mol \cdot m^{-2} \cdot s^{-1} \cdot Pa^{-1}$) or more.

Claim 13 (Currently Amended): The DDR type zeolite membrane according to ~~any one of claims 10 to 12~~ claim 10, wherein a separation factor of CO_2/CH_4 in a mixed gas containing carbon dioxide (CO_2) and methane (CH_4) in an equimolar amount is 2 or more at room temperature and 100°C.

Clam 14 (Original): The DDR type zeolite membrane according to claim 10, wherein each value of a ratio of a single gas permeance of carbon dioxide (CO_2) at room temperature and 100°C to a single gas permeance of any one of hydrogen (H_2), oxygen (O_2), nitrogen (N_2), methane (CH_4), normal butane (n-C_4H_{10}), isobutane (i-C_4H_{10}), and sulfur hexafluoride (SF_6) at room temperature and 100°C is 2 or more.

Claim 15 (Original): The DDR type zeolite membrane according to claim 14, wherein a value of a ratio of a single gas permeance of hydrogen (H_2) at room temperature and 100°C to a single gas permeance of any one of oxygen (O_2), nitrogen (N_2), methane (CH_4), normal butane (n-C_4H_{10}), isobutane (i-C_4H_{10}), and sulfur hexafluoride (SF_6) at room temperature and 100°C is 2 or more.

Claim 16 (Currently Amended): The DDR type zeolite membrane according to claim 14 ~~or 15~~, wherein each value of a ratio of a single gas permeance of oxygen

(O_2) at room temperature and 100°C to a single gas permeance of any one of nitrogen (N_2), methane (CH_4), normal butane (n-C_4H_{10}), isobutane (i-C_4H_{10}), and sulfur hexafluoride (SF_6) at room temperature and 100°C is 1.1 or more.

Claim 17 (Currently Amended): The DDR type zeolite membrane according to ~~any one of claims 14 to 16~~ claim 14, wherein each value of a ratio of a single gas permeance of nitrogen (N_2) at room temperature and 100°C to a single gas permeance of any one of methane (CH_4), normal butane (n-C_4H_{10}), isobutane (i-C_4H_{10}), and sulfur hexafluoride (SF_6) at room temperature and 100°C is 2 or more.

Claim 18 (Currently Amended): The DDR type zeolite membrane according to ~~any one of claims 14 to 17~~ claim 14, wherein each value of a ratio of a single gas permeance of methane (CH_4) at room temperature and 100°C to a single gas permeance of any one of normal butane (n-C_4H_{10}), isobutane (i-C_4H_{10}), and sulfur hexafluoride (SF_6) at room temperature and 100°C is 2 or more.

Claim 19 (Currently Amended): The DDR type zeolite membrane according to ~~any one of claims 14 to 18~~ claim 14, wherein each value of a ratio of a single gas permeance of normal butane (n-C_4H_{10}) at room temperature and 100°C to a single gas permeance of isobutane (i-C_4H_{10}) or sulfur hexafluoride (SF_6) at room temperature and 100°C is 1.1 or more.

Claim 20 (Currently Amended): The DDR type zeolite membrane according to ~~any one of claims 14 to 19~~ claim 14, wherein each value of a ratio of a single gas permeance of isobutane (i-C_4H_{10}) at room temperature and 100°C to a single gas permeance of sulfur hexafluoride (SF_6) at room temperature and 100°C is 1.1 or more.

Claim 21 (Original): The DDR type zeolite membrane according to claim 10, wherein each separation factor of H_2/CH_4 in a mixed gas containing hydrogen (H_2) and methane (CH_4) in an equimolar amount at room temperature and 100°C is 2 or more.

Claim 22 (Original): The DDR type zeolite membrane according to claim 10, wherein each separation factor of C_2H_4/C_2H_6 in a mixed gas containing ethylene (C_2H_4) and ethane (C_2H_6) in an equimolar amount at room temperature and 100°C is 1.5 or more.

Claim 23 (Original): The DDR type zeolite membrane according to claim 10, wherein each separation factor of O_2/N_2 in the air at room temperature and 100°C is 1.5 or more.

Claim 24 (Currently Amended): A gas separation method for separating at least one type of gas component from a mixed gas containing at least two types of gas components selected from a group consisting of carbon dioxide (CO_2), hydrogen (H_2), oxygen (O_2), nitrogen (N_2), methane (CH_4), normal butane (n-C_4H_{10}), isobutane (i-

C_4H_{10}), sulfur hexafluoride (SF_6), ethane (C_2H_6), ethylene (C_2H_4), propane (C_3H_8), propylene (C_3H_6), carbon monoxide (CO), and nitrogen monoxide (NO), ~~using a DDR type zeolite membrane according to any one of claims 10 to 23~~ by making said mixed gas components permeate through a DDR type zeolite membrane being formed as a membrane on a substrate and its main component is silica, and wherein each single gas permeance at room temperature and 100°C are different, respectively to separate said at least one type of gas component.

Claim 25 (Original): The gas separation method according to claim 24, wherein carbon dioxide (CO_2) is selectively separated from a mixed gas containing carbon dioxide (CO_2) and methane (CH_4).

Claim 26 (Currently Amended): A gas separation apparatus comprising a DDR type zeolite membrane ~~according to any one of claims 10 to 23~~ being formed as a membrane on a substrate and its main component is silica, and wherein each single gas permeance at room temperature and 100°C are different, respectively to separate said at least one type of gas component in order to separate at least one type of gas component from a mixed gas containing at least two types of gas components selected from a group consisting of carbon dioxide (CO_2), hydrogen (H_2), oxygen (O_2), nitrogen (N_2), methane (CH_4), normal butane (n-C_4H_{10}), isobutane (i-C_4H_{10}), sulfur hexafluoride (SF_6), ethane (C_2H_6), ethylene (C_2H_4), propane (C_3H_8), propylene (C_3H_6), carbon monoxide (CO), and nitrogen monoxide (NO).

Claim 27 (Original): The gas separation apparatus according to claim 26, wherein the gas separation apparatus selectively separates carbon dioxide (CO_2) from a mixed gas containing carbon dioxide and methane (CH_4).

Claim 28 (Original): A DDR type zeolite membrane composite, characterized by being provided with a porous substrate, and a DDR type zeolite layer deposited within pores of substrate and having a thickness 5 to 50 times of a mean pore diameter of the porous substrate; said DDR zeolite layer composed of a DDR type zeolite having been disposed within pores of at least one surface of the porous substrate.

Claim 29 (Original): The DDR type zeolite membrane composite according to claim 28, further comprising a DDR type zeolite layer deposited outside of the substrate, which is made of a DDR type zeolite and has a thickness of 30 μm or less, on a surface of said porous substrate on which said DDR type zeolite layer deposited within pores of substrate is disposed.

Claim 30 (Currently Amended): The DDR type zeolite membrane composite according to claim 28 ~~or 29~~, wherein a mean pore diameter of said porous substrate is 0.05 to 10 μm.

Claim 31 (Original): A production method of a DDR type zeolite membrane composite, characterized by forming a raw material solution having a mixing ratio of 1-adamantanamine to silica (1-adamantanamine (mol)/silica (mol)) of 0.03 to 0.4, and

a mixing ratio of water to silica (water (mol)/silica (mol)) of 20 to 500, immersing a porous substrate in said obtained raw material solution for hydrothermal synthesis, thereby forming a DDR type zeolite layer deposited within pores of substrate having a thickness of 5 to 50 times of a mean pore diameter of said substrate, and being formed from a DDR type zeolite, which is formed within pores of at least one surface of said porous substrate.

Claim 32 (Original): The production method of a DDR type zeolite membrane composite according to claim 31, wherein a DDR type zeolite layer deposited outside of the substrate having a thickness of 30 μm or less, being formed from a DDR type zeolite on a surface of the porous substrate, on which the DDR type zeolite layer deposited within pores of substrate is disposed.

Claim 33 (Currently Amended): The production method of a DDR type zeolite membrane composite according to claim 31 ~~or 32~~, wherein said porous substrate has a mean pore diameter of 0.05 to 10 μm.

Claim 34 (Currently Amended): The production method of a DDR type zeolite membrane composite according to ~~any one of claims 31 to 33~~ claim 31, wherein said hydrothermal synthesis is performed at 130°C to 200°C.

Claim 35 (Currently Amended): The production method of a DDR type zeolite membrane composite according to ~~any one of claims 31 to 34~~ claim 31,

wherein said raw material solution further contains a DDR type zeolite powder to be a seed crystal.

Claim 36 (Currently Amended): The production method of a DDR type zeolite membrane composite according to ~~any one of claims 31 to 34~~ claim 31, wherein a DDR type zeolite powder to be a seed crystal is deposited on surface of said porous substrate to be immersed in said raw material solution.